

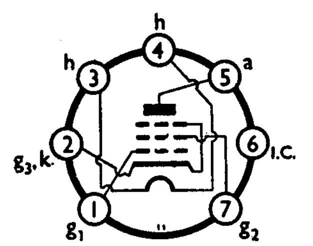
MINIATURE OUTPUT PENTODE

6·3V INDIRECTLY HEATED

N77

SEPTEMBER, 1953

BASE CONNECTIONS AND VALVE DIMENSIONS



View from underside of base.

Base :	B7G	
Bulb :	Tubular.	
Overall length :	49—55	mm.
Seated length :	43—49	mm.
Max. diameter :	19	mm.

RATING

Pentode connection

V_h	6·3		V
I_h	0·2		A
$V_{h\text{-}k}$ (pk)	150	max.	V
V_a	250	max.	V
V_{g2}	250	max.	V
p_a	4	max.	W
p_{g2}	0·6	max.	W
r_a } at $V_a = V_g$ 250 $I_a = 16$mA	130		kΩ
g_m } at $V_a = V_g$ 250 $I_a = 16$mA	2·6		mA/V

Triode connection

$V_{a\ g2}$	250	max.	V
$p_{a\ g2}$	4·6	max.	W
μ } at $V_{a\ g2} = 250$ $I_a = 16$ mA	11·5		
r_a } at $V_{a\ g2} = 250$ $I_a = 16$ mA	3·85		kΩ
g_m } at $V_{a\ g2} = 250$ $I_a = 16$ mA	3		mA/V

CAPACITANCES (of cold unscreened valve)

$c_{a\text{-}all}$ 4·2 pF $c_{g1\text{-}all}$ 3·2 pF $c_{a\text{-}g1} < 0·5$ pF

TYPICAL OPERATION

Single valve. Class A. Pentode connection.

V_a	250	V
V_{g2}	250	V
I_a	16	mA
I_{g2}	2·4	mA
R_k	680	Ω
v_{in} (pk)	7·5	V
R_L	16	kΩ
P_{out}	1·4	W
D	10	%

MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

Head Office: Marconi House, Chelmsford · Telephone: Chelmsford 3221 · Telegraphic Address: Expanse, Chelmsford

Push-pull. Class AB_1. Self bias.
Data per pair unless otherwise stated.

V_a	250		V
V_{g2}	250		V
V_{g1} (0)	15	approx.	V
I_a (0)	22		mA
I_a (max. sig.)	25·6		mA
I_{g2} (0)	3·2		mA
I_{g2} (max. sig.)	8·2		mA
R_k	600		Ω
v_{in} (pk) (g_1-g_1)	34		V
R_L (a—a)	24		kΩ
P_{out}	4		W
D	3·2		%

Push-pull. Class AB_1. Fixed bias.
Data per pair unless otherwise stated.

V_a	250	V
V_{g2}	250	V
V_{g1}	−19	V
I_a (0)	10	mA
I_a (max. sig.)	32	mA
I_{g2} (0)	1·3	mA
I_{g2} (max. sig.)	9	mA
v_{in} (pk) (g_1-g_1)	37	V
R_L	20	kΩ
P_{out}	4·8	W
D	3·3	%

GRID RESISTOR

The maximum permissible D.C. resistance between control grid and cathode is limited to 470 kΩ ± 20% with auto-bias, and 100 kΩ ± 20% with fixed bias operation.

MOUNTING

Any position.

RETAINING

A retaining device should be used.

SCREENING

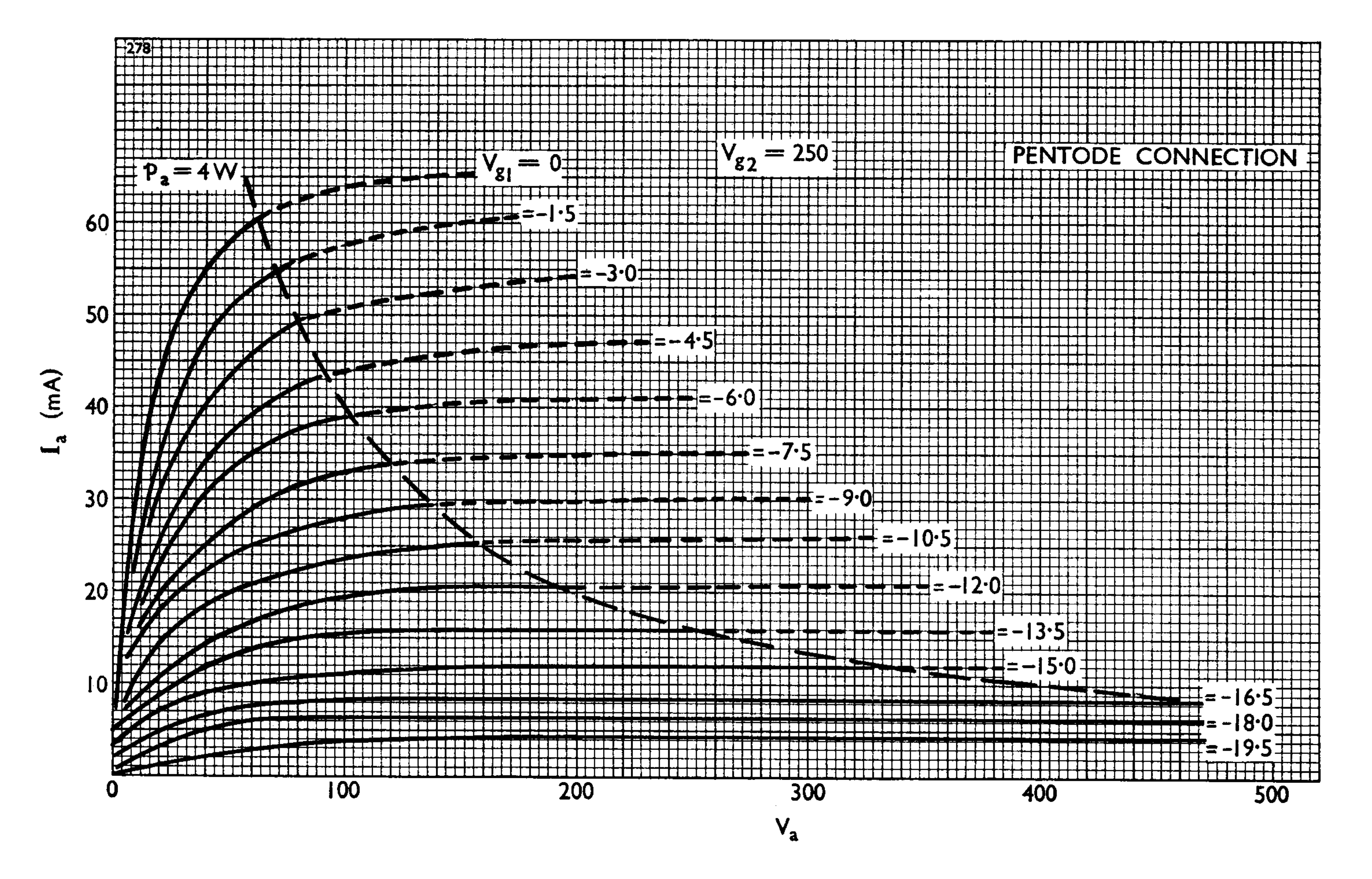
No internal or external screening is fitted to the valve.

VENTILATION

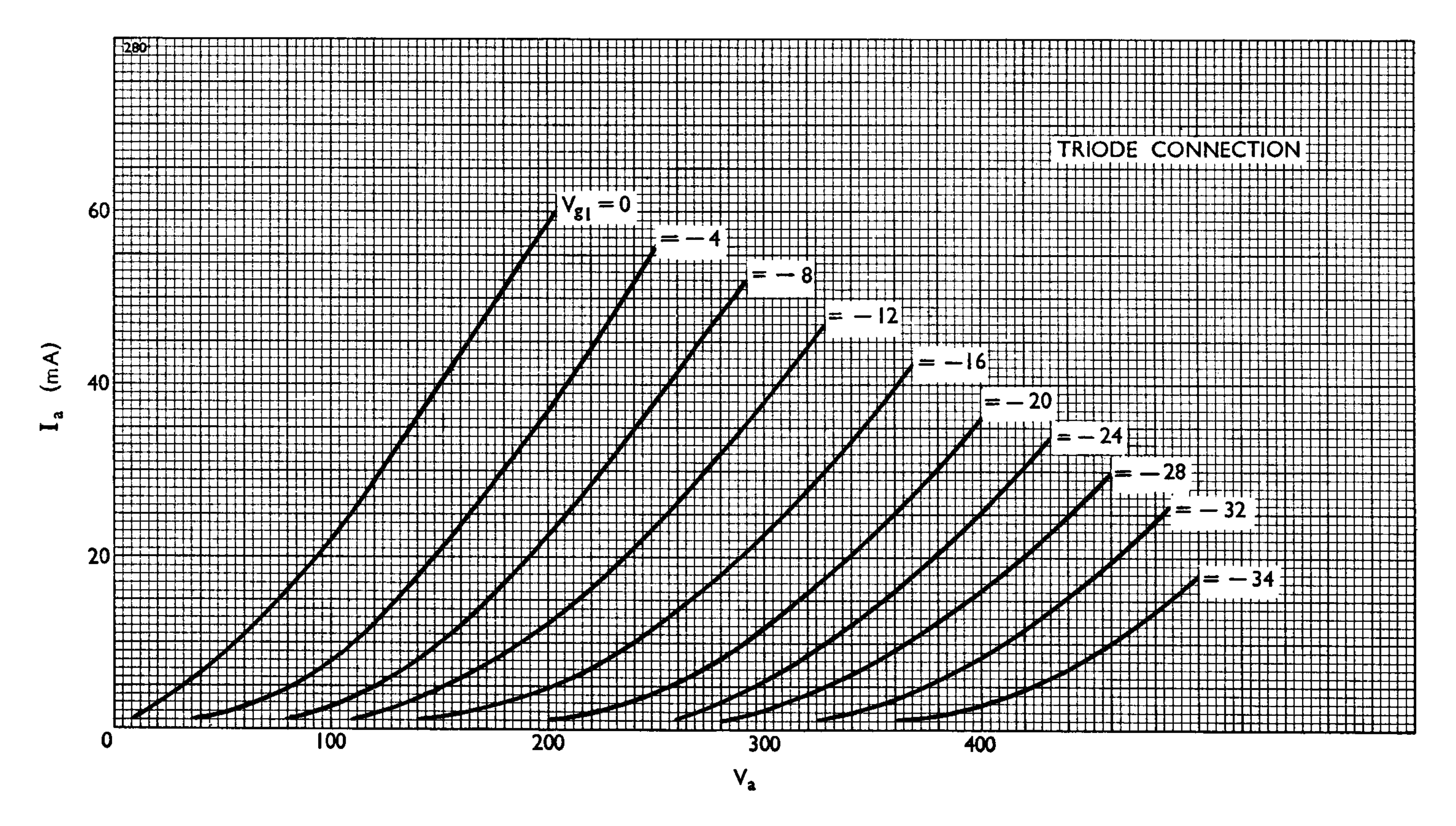
Free air circulation around the bulb should be allowed.

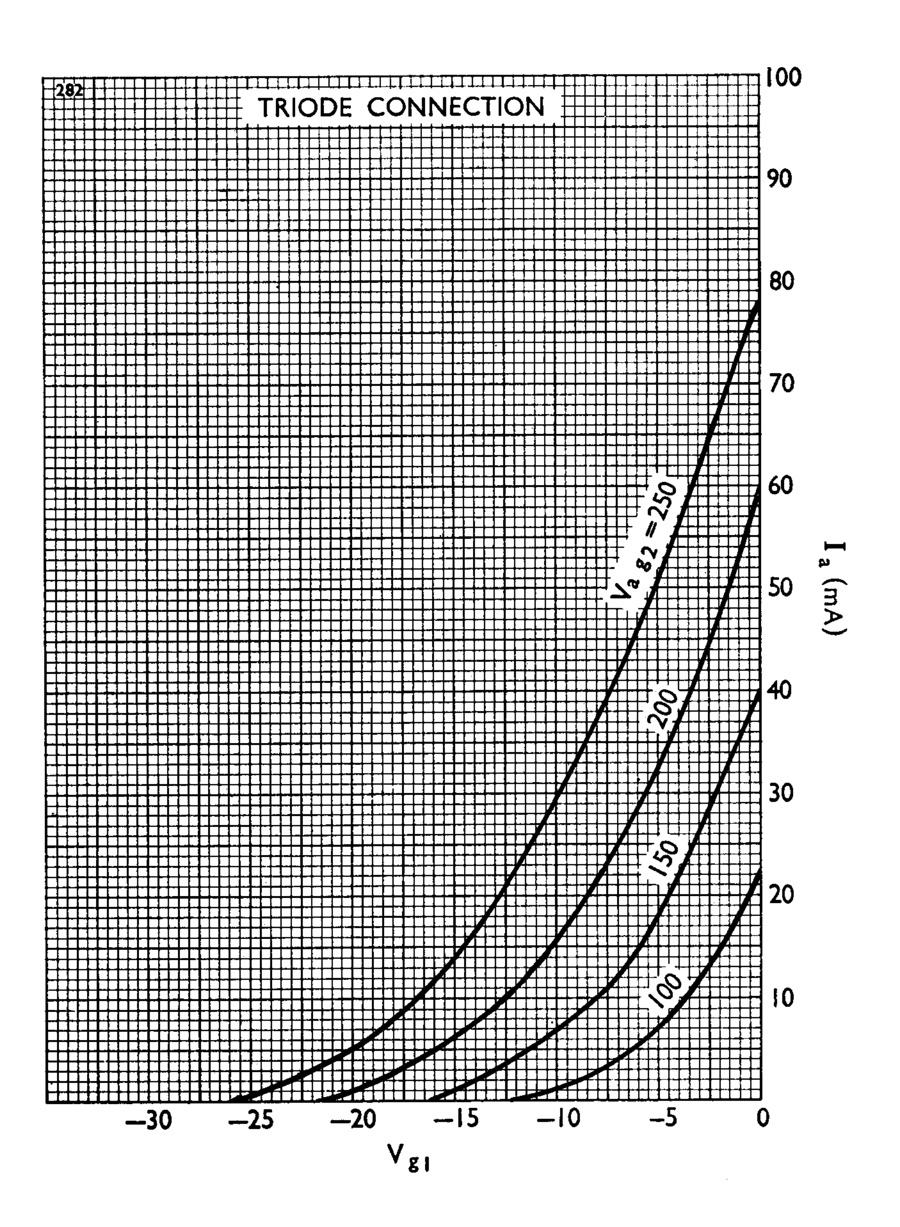
MICROPHONY

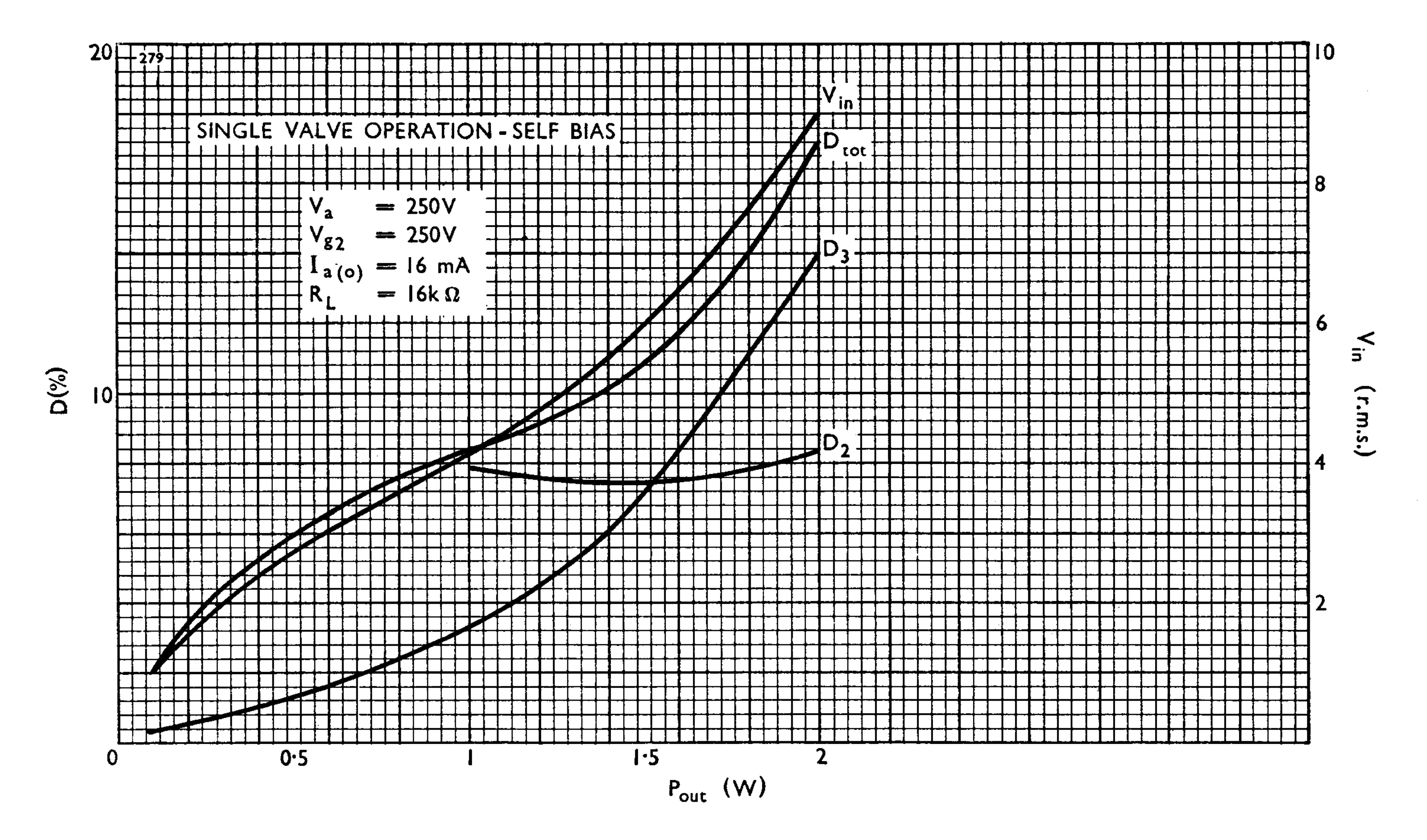
Although of a very low order, equipment should be designed to minimise microphony.



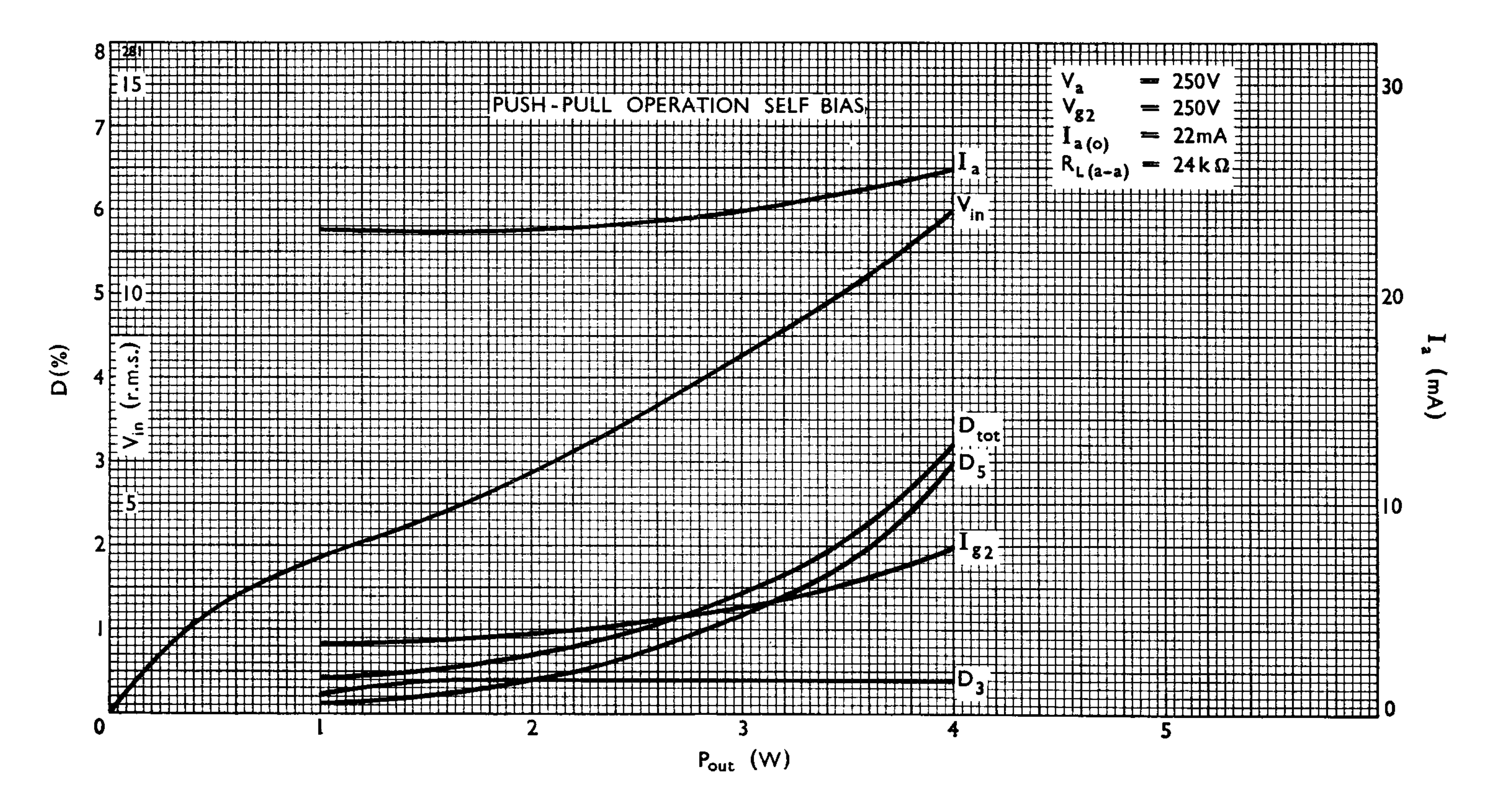
PENTODE CONNECTION
V_g2 = 250
V_g1 = 0
= -1·5
= -3·0
= -4·5
= -6·0
= -7·5
= -9·0
= -10·5
= -12·0
= -13·5
= -15·0
= -16·5
= -18·0
= -19·5
P_a = 4 W
I_a (mA)
V_a
0
100
200
300
400
500
10
20
30
40
50
60
278


280
TRIODE CONNECTION
$V_{g1} = 0$
= −4
= −8
= −12
= −16
= −20
= −24
= −28
= −32
= −34
I_a (mA)
60
40
20
0
100
200
300
400
V_a


282
TRIODE CONNECTION
$V_{a\ g2}$ = 250
200
150
100
100
90
80
70
60
50
40
30
20
10
I_a (mA)
−30
−25
−20
−15
−10
−5
0
V_{g1}



SINGLE VALVE OPERATION - SELF BIAS
V_a = 250V
V_g2 = 250V
I_a(o) = 16 mA
R_L = 16k Ω
V_in
D_tot
D_3
D_2
D(%)
20
10
279
0
0·5
1
1·5
2
P_out (W)
10
8
6
4
2
V_in (r.m.s.)



PUSH-PULL OPERATION SELF BIAS
V_a = 250V
V_{g2} = 250V
$I_{a(o)}$ = 22mA
$R_{L(a-a)}$ = 24 kΩ
I_a
V_{in}
D_{tot}
D_5
I_{g2}
D_3
D (%)
V_{in} (r.m.s.)
I_a (mA)
P_{out} (W)



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